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(54) MANUFACTURE OF SILICON FILM

(57) Abstract:

PURPOSE: To form an amorphous silicon film having a sufficient deposition rate and excellent electric characteristics by a method wherein a

thermal CVD method is performed at the substrate temperature of 480°C or below using trisilane or higher silanes.

CONSTITUTION: The substrate 4 consisting of a wafer and the like is inserted into the chamber 1 consisting of a heating means 2, a susceptor 3, a gas blow-out hole 5, the exhaust hole and the like connected to a gas exhaust means 7, they are placed on the upper surface of the susceptor 3. When they are heated up to 400°C or thereabout by a heating means 2, the silane of high order which is higher than trisilane is introduced into the chamber 1. As a result, an amorphous silicon film is formed on the surface of the substrate 4 by thermal decomposition reaction. At this time, atmospheric gas is introduced into the chamber 1 in advance, and after the temperature of the substrate 4 has been stabilized, raw gas is introduced, and the temperature variation when a film is formed can be made small substantially by performing a thermal CVD.

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